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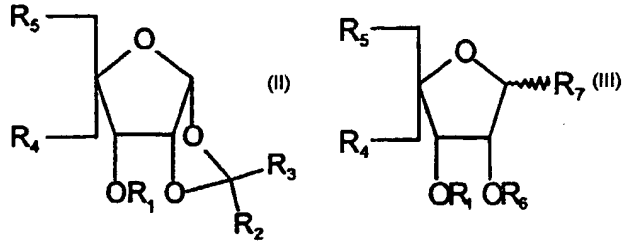
(54) Title: IMPROVED SYNTHESIS OF [2.2.1]BICYCLO NUCLEOSIDES



(57) Abstract: A synthesis of [2.2.1]bicyclo nucleosides which is shorter and provides higher overall yields proceeds *via* the key intermediate of general formula (III), wherein R_4 and R_5 are, for instance, sulfonates and R_7 is, for instance, a halogen or an acetate. From compounds in general formula (II), such as 3-*O*-aryl-4-*C*-hydroxymethyl-1,2-*O*-isopropylidene-α-D-ribofuranose, intermediates of general formula (III) are suitable for coupling with silylated nucleobases. Upon one-pot base-induced ring-closure and desulfonation of the formed [2.2.1]bicyclo nucleoside, a short route to each the LNA (Locked Nucleic Acid) derivatives of adenosine, cytosine, uridine, thymidine and guanidine is demonstrated. The use of the 5'-sulfonated ring-closed intermediate also allows for synthesis of 5'-amino- and thio-LNAs.

WO 00/56746 A3